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ABSTRACT

A study was conducted to collect statistical data (age, sex, race, years of school completed, occupation, field of training, and family income levels) on U.S. students who were participating in postsecondary vocational programs in October 1976 or who had participated in such programs during the previous year. Vocational, business, technical, or correspondence schools were included. Some of the results include the following: In October 1976, 7.2 million people, or four percent of the total population fourteen years old and over, were attending, or had attended a vocational school in the past twelve months. Among persons with recent vocational school experience, eighty-one percent of those eighteen years old and over attended vocational school primarily for occupational training. Persons with a college background were more likely to have had recent vocational school experience than persons with four years of high school or less. The manual and mechanical trades were the most common fields of vocational training (thirty-three percent) for those persons eighteen years old and over with recent vocational school experience. About half of the men and over half of the women with recent vocational school experience had occupational goals similar to their current occupations. Family income was not significant in determining vocational school attendance. (JH)

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CURRENT POPULATION REPORTS

Population Characteristics

Series P-20, No. 343
Issued September 1979

Vocational School Experience: October 1976

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Contents

	Page
Highlights	1
Introduction	1
Occupational training	4
Years of school completed	5
Field of vocational training	5
Family income	8
Related reports	8
Methodological note	10

TEXT TABLES

Table		
A.	Selected characteristics of persons 14 years old and over, by attendance status in regular school or vocational school: October 1976	2
B.	Vocational school experience of persons 14 years old and over, by age, sex, race, Spanish origin, and years of school completed: October 1976	3
C.	Attendance status of students 14 years old and over enrolled in vocational school, by selected characteristics: October 1976	4
D.	Percent of persons 18 years old and over with vocational training experience who were enrolled for occupational training: October 1976	5
E.	Years of school completed for high school graduates 18 years old and over, by vocational school experience and sex: October 1976	6
F.	Vocational school experience of high school graduates 18 years old and over, by years of school completed, sex, and age: October 1976	7
G.	Field of training for persons 18 years old and over with vocational school experience, by sex: October 1976	7
H.	Field of training for persons 18 years old and over with vocational school experience, by labor force status, current occupation, and sex: October 1976	8
I.	Current occupation and occupational goals of employed persons 18 years old and over, with vocational school experience, by sex: October 1976	9
J.	Percent with occupational goals in the same field for employed persons 18 years old and over with vocational school experience, by current occupation: October 1976	9
K.	Regular school or vocational school enrollment, by family income for dependent family members 18 to 24 years old: October 1976	10

APPENDIXES

Appendix A. Definitions and explanations	13
Appendix B. Source and reliability of the estimates	17

APPENDIX TABLES

Table		
A-1.	October CPS control card family income and March CPS supplement family income: 1967 to 1976	16
B-1.	Standard errors of estimated numbers	19
B-2.	Standard errors of estimated percentages	19
B-3.	"a" and "b" parameters and factors for estimated numbers and percentages	20

Vocational School Experience: October 1976

HIGHLIGHTS

- In October 1976, 7.2 million people, or 4 percent of the total population 14 years old and over, were attending, or had attended a vocational school in the past 12 months. About 3 million were attending during October and another 4 million had attended during the preceding year.
- Among persons with recent vocational school experience, 81 percent of those 18 years old and over attended vocational school primarily for occupational training.
- Persons with a college background were more likely to have had recent vocational school experience than persons with 4 years of high school or less. The findings of the study indicated, however, that vocational training was received by persons of all levels of education.
- The manual and mechanical trades were the most common fields of vocational training (33 percent) for those persons 18 years old and over with recent vocational school experience. About 47 percent of men with recent vocational school experience had been or were enrolled in trade schools; among women with vocational school experience, however, 37 percent were trained in clerical or business fields.
- About one-half of the men and over one-half of the women with recent vocational school experience had occupational goals similar to their current occupation.
- Family income was not significant in determining vocational school attendance. There were no measurable differences in the percentage of dependent family members 18 to 24 years old attending vocational school among the several family income categories.

INTRODUCTION

Although information on the characteristics of persons participating in academic school programs has been available in the United States on an annual basis for at least three decades, there has been very little information on the characteristics of persons who attended vocational school after completing high school. This report presents statistical data on the age, sex, race, years of school completed, occupation, field of training, and family income levels of students who were participating in vocational programs in October 1976 or who had participated in such programs during the previous year. This information was collected at the request of and supported by the National Center for Education Statistics. Persons 14 years old and over were asked whether they were currently enrolled, or had been enrolled in the past 12 months, in a vocational, business, technical, or correspondence school other than on-the-job training; what field of training they were enrolled in; the occupation for which they enrolled in a vocational training program; and their current occupation. Enrollment in high school vocational programs, adult education and continuing education programs was not included in this survey.

Information on persons who have attended vocational training programs has been collected occasionally in surveys by the Bureau of the Census and in the 1970 Census of Population. The 1970 Census of Population, for example, displayed the number of persons who had completed a vocational training program at some time in their lives. Subsequent analysis of the errors in reporting the amount and type of vocational training completed has indicated, however, that respondents did not always give consistent answers to questions on vocational training. A discussion of attempts to evaluate the questions on amount and type of vocational training completed is included later in this report. The October 1976 Current Population Survey (CPS), however, used a series of questions designed to improve the reliability of responses to the questions on current enrollment in vocational programs. The questions focused on training specifically to be used for job related purposes. Since this survey was conducted by trained interviewers, the responses were expected to be more reliable than those collected in mailout surveys. In addition, questions in the October CPS since 1973 concerning participation in vocational training courses have produced estimates of attendance in vocational training programs that are very consistent from year to year indicating some evidence for reliable reporting of this CPS item.

This report compares the characteristics of students with recent vocational school experience with the characteristics of persons of school age not attending any type of school and persons enrolled in college. It also presents some of the first national statistics on the number and percent of the population currently or recently enrolled in vocational schools, and whether these persons were attending vocational school in order to prepare for a specific occupation. These statistics also provide a benchmark for comparison with future similar surveys to measure changes in participation levels.

One of the more important aspects of postsecondary vocational training is its usefulness in a wide variety of occupations. It can be beneficial to many types of persons desiring an orientation in a particular profession as well as for those who are already working and would like to upgrade

their skills. Persons with a high school or college education may enroll in vocational programs as a transition from school to work in order to provide themselves with skills necessary in a particular occupation which may not have been provided in an academic setting and which often take years to acquire through on-the-job experience. Information about the fields of study for persons who were taking vocational courses in October 1976 or in the preceding 12 months and of the occupations they currently hold or intended to hold is presented in this report.

"Vocational training" is defined here as any type of occupational training which is not received through a program which provides college credit toward a baccalaureate degree or higher; it includes formal training through lectures or demonstration of the activity but excludes high school courses (such as shop or typing) and on-the-job training. Since vocational training for occupations may range from as little as a few months to several years, persons in the October 1976 survey were asked if they were currently attending vocational school at that time, and if not, they were asked whether they had attended vocational school during the past 12 months. This line of questioning allowed survey coverage of vocational training programs for an entire year. Since many vocational programs are short term and the classes do not follow a "season" as in regular schools, a question regarding enrollment for a single month would omit persons who had attended a short course in the recent past. In fact, 4 million persons were found to have taken courses in the past 12 months compared with 3 million who were attending in the month of October in 1976. Those who were attending in October 1976 or had attended during the preceding 12 months are identified in the text and the tables as having had "vocational school experience;" those enrolled in October 1976 are identified as "attending or enrolled in vocational school." Persons with vocational school experience were asked to specify whether their vocational program was intended for occupational training, since some people may enroll in vocational programs but do not intend to use this

Table A. Selected Characteristics of Persons 14 Years Old and Over, by Attendance Status in Regular School or Vocational School: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Characteristics	Total population[1]	With vocational school experience			Enrolled in regular school	No vocational school experience and not enrolled in regular school
		Total	Attended in October 1976	Attended in past 12 months but not at survey date		
AGE						
Total, 14 years old and over.....	163,039	7,210	3,107	4,103	27,632	124,495
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
14 to 21 years old.....	20.0	17.5	20.6	15.2	79.3	7.4
22 to 34 years old.....	26.0	44.2	45.9	42.9	16.1	27.3
35 years old and over.....	54.0	38.3	33.6	41.9	4.5	65.4
SEX						
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
Male.....	47.4	52.5	50.3	54.1	51.9	46.3
Female.....	52.6	47.5	49.7	45.9	48.1	53.7
RACE AND SPANISH ORIGIN						
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
White.....	87.9	90.7	91.1	90.3	84.8	88.3
Black.....	10.6	7.7	7.3	7.9	13.2	10.2
Spanish origin[2].....	4.7	4.1	4.5	3.9	35.2	4.6
YEARS OF SCHOOL COMPLETED						
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
Not high school graduate.....	39.0	10.2	10.5	10.0	59.7	36.2
High school: 4 years.....	34.2	44.9	50.8	40.5	10.6	38.7
College: 1 to 3 years.....	14.5	24.1	21.4	26.2	22.0	12.4
4 years or more.....	12.4	20.7	17.3	23.3	7.8	12.8
FAMILY INCOME						
Dependent family members 18 to 24 years old, reporting income.....	12,739	874	480	394	5,739	6,006
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
Under $10,000.....	28.5	30.7	29.2	32.5	20.8	35.6
$10,000 to $19,999.....	38.4	37.6	37.5	37.8	37.2	39.6
$20,000 and over.....	33.1	31.7	33.5	29.4	42.0	24.8

[1] Includes persons who did not report on vocational enrollment not shown separately.
[2] Persons of Spanish origin may be of any race.
[3] The percent Spanish was computed only for persons 14 to 34 years old.

training for an occupation. This type of inquiry also indicates the extent that these questions measure training for specific occupational purposes rather than general education.

One question answered by this report is: What are the characteristics of persons who attend a vocational school rather than a high school or college? For example, how do they compare with college students or persons who have not recently attended vocational school in terms of age, sex, race, and educational level. A summary of several such characteristics for persons 14 years old and over who had vocational school experience is shown in table A. Students who were participating in vocational training programs in October 1976 were younger than the total population but older than students in high school or college. About one-fifth of persons attending vocational school at the survey date were 14 to 21 years old, whereas one-third were 35 years old or over. About one-half of all vocational students were male (not different from students in regular schools), and about 7 percent were Black, a figure that is significantly lower than the proportion in high schools or colleges. However, there were no significant differences in the proportion of all vocational students who were of Spanish origin compared with students in regular schools or not enrolled in any school.

Vocational school students in October 1976 were more likely than the general population to have completed exactly 4 years of high school, and a surprisingly high proportion of vocational students (39 percent) had already completed 1 or more years of college. The family income distribution of dependent family members 18 to 24 years old enrolled in vocational school was not significantly different from the distribution for all dependent family members in that age group. Their income distribution was lower than that for students in regular school, however, and higher than for persons of that age who were not enrolled in any type of school that year (table A).

The extent of participation in vocational programs is shown in table B. In October 1976, 7.2 million people, or 4 percent of the total population 14 years old and over, had

Table B. Vocational School Experience of Persons 14 Years Old and Over, by Age, Sex, Race, Spanish Origin, and Years of School Completed: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Age, sex, race, Spanish origin, and years of school completed	Total population 14 years old and over	With vocational school experience			
		Number	Percent of total population	Attended in October 1976	Attended in past 12 months but not at survey date
ALL RACES					
Both Sexes					
Total, 14 years old and over	163,039	7,210	4.4	3,107	4,103
14 to 21 years old	32,661	1,264	3.9	639	624
22 to 34 years old	42,404	3,186	7.5	1,425	1,760
35 years old and over	87,974	2,760	3.1	1,043	1,718
Male					
Total, 14 years old and over	77,334	3,784	4.9	1,564	2,220
14 to 21 years old	16,202	545	3.4	266	278
22 to 34 years old	20,534	1,821	8.9	807	1,014
35 years old and over	40,598	1,419	3.5	491	929
Female					
Total, 14 years old and over	85,705	3,426	4.0	1,543	1,882
14 to 21 years old	16,459	719	4.4	372	347
22 to 34 years old	21,870	1,366	6.2	620	746
35 years old and over	47,376	1,341	2.8	552	789
RACE AND SPANISH ORIGIN					
White, 14 years old and over	143,250	6,536	4.6	2,829	3,707
Black, 14 years old and over	17,218	552	3.2	227	325
Spanish origin[1], 14 years old and over	7,703	299	3.9	139	160
YEARS OF SCHOOL COMPLETED					
Total, all races	163,039	7,210	4.4	3,107	4,103
Not high school graduate	63,529	739	1.2	327	412
High school: 4 years	55,681	3,237	5.8	1,577	1,661
College: 1 to 3 years	23,683	1,738	7.3	665	1,074
4 years or more	20,146	1,496	7.4	539	957

[1] Persons of Spanish origin may be of any race.

recent vocational school experience. About the same number of men and women were attending vocational school in October 1976, but a slightly higher proportion of men than women who were not attending vocational school at the survey date had attended during the preceding 12 months. White persons were more likely than Black persons to have had recent vocational school experience.

Vocational students may receive training by either attending full time or part time, or through correspondence courses. Table C indicates that those in vocational schools in October 1976 were most likely to be attending vocational school part time (57 percent). Those over 21 years old were significantly more likely to be attending vocational school part time or taking correspondence courses than those 21 years old and under who were more likely to be attending vocational school full time. Men were significantly more likely to be taking vocational correspondence courses than women, and White persons were more likely than Black persons to be attending vocational school part time.

OCCUPATIONAL TRAINING

Just as regular elementary school, high school, or college may be useful either for general education or for work preparation, vocational training programs may be used for personal enrichment or to prepare for a job. To more precisely determine whether persons who reported taking vocational training during the past year were intending to use that training for employment, each was asked to name the occupation for which they were receiving the training.

Nearly all persons with recent vocational school experience were preparing for specific occupations. Table D shows that 81 percent of persons 18 years old and over with recent vocational school experience reported a specific job for which they were receiving training. Persons 18 to 24 years old were more likely than persons 25 years old and over to have been enrolled for the purpose of receiving occupational training, 85 percent versus 79 percent, respectively. A slightly higher percentage of men than of

Table C. Attendance Status of Students 14 Years Old and Over Enrolled in Vocational School, by Selected Characteristics: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Age, sex, race, Spanish origin, and years of school completed	Total population 14 years old and over	Attended in October 1976		Attendance status in October 1976				
		Number	Percent	Total	Full time	Part time	Correspondence school	Not classifiable or not reported
ALL RACES								
Both Sexes								
Total, 14 years old and over	163,039	3,107	1.9	100.0	20.3	57.2	15.0	7.5
14 to 21 years old	32,661	639	2.0	100.0	50.7	39.0	8.3	1.9
22 to 34 years old	42,404	1,425	3.4	100.0	16.1	59.3	17.0	7.7
35 years old and over	87,974	1,043	1.2	100.0	7.4	65.6	16.3	10.7
Male								
Total, 14 years old and over	77,334	1,564	2.0	100.0	18.2	54.5	20.0	7.2
14 to 21 years old	16,202	266	1.6	100.0	48.5	42.9	7.1	1.5
22 to 34 years old	20,534	807	3.9	100.0	15.5	55.3	21.3	7.9
35 years old and over	40,598	491	1.2	100.0	6.1	59.7	24.8	9.4
Female								
Total, 14 years old and over	85,705	1,543	1.8	100.0	22.4	59.9	9.8	7.9
14 to 21 years old	16,459	372	2.3	100.0	52.7	36.3	9.1	2.2
22 to 34 years old	21,870	620	2.8	100.0	16.6	64.4	11.3	7.4
35 years old and over	47,376	552	1.2	100.0	8.5	70.8	8.5	12.0
RACE AND SPANISH ORIGIN								
White, 14 years old and over	143,250	2,829	2.0	100.0	19.2	58.0	15.1	7.7
Black, 14 years old and over	17,218	227	1.3	100.0	36.6	44.5	11.9	7.0
Spanish origin[1], 14 years old and over	7,703	139	1.8	100.0	21.6	59.7	11.5	7.2
YEARS OF SCHOOL COMPLETED								
Total, all races	163,039	3,107	1.9	100.0	20.3	57.2	15.0	7.5
Not high school graduate	63,529	327	0.5	100.0	22.9	49.8	20.5	6.1
High school: 4 years	55,681	1,577	2.8	100.0	24.8	54.6	14.3	6.2
College: 1 to 3 years	23,683	665	2.8	100.0	19.4	57.7	15.5	7.4
4 years or more	20,146	539	2.7	100.0	6.1	68.3	13.0	12.6

[1] Persons of Spanish origin may be of any race.

Table D. Percent of Persons 18 Years Old and Over With Vocational Training Experience Who Were Enrolled for Occupational Training: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Age and sex	Total with vocational school experience[1]	Percent taking occupational training
BOTH SEXES		
Total, 18 years old and over	7,149	80.7
18 to 24 years old	2,030	85.2
25 years old and over	5,119	79.0
MALE		
Total, 18 years old and over	3,759	83.0
18 to 24 years old	969	87.9
25 years old and over	2,790	81.3
FEMALE		
Total, 18 years old and over	3,390	78.2
18 to 24 years old	1,061	82.8
25 years old and over	2,329	76.1

[1] Includes those who attended vocational school in October 1976 or during the preceding 12 months.

women with recent vocational school experience were enrolled for occupational training, 83 percent versus 78 percent, respectively.

YEARS OF SCHOOL COMPLETED

Participation in a program of vocational education was not confined to people who never attended college. In fact, persons with a college background were more likely to have had recent vocational school experience than persons with 4 years of high school or less. About 7 percent of the total population with college training and 6 percent of those with 4 years of high school had recent vocational school experience while only 1 percent of those with less than 4 years of high school had the same experience. Of persons attending vocational school, those who had not attended college previously were more likely than were those with a college background to be attending full time (tables B and C).

Table E contains a distribution of the educational attainment of high school graduates who were enrolled in vocational courses in October 1976 or during the preceding 12 months, as well as those who were not enrolled in vocational school. About one-half of the high school graduates with recent vocational school experience had completed 1 or more years of college. Persons 18 years old and over with vocational school experience were more likely than those not in a vocational program to have already completed a few years of college or to have earned a college degree. Evidently many persons with some college training were taking a course in vocational school that would benefit them in their job or to help them obtain a job.

Table F presents data on high school graduates, who were enrolled in vocational training programs by age, sex, and educational attainment. High school graduates who were 18 to 24 years old were more likely to have had recent vocational school experience than those who were 25 years old and over. In the 18- to 24-year-old age group, persons with 1 to 3 years of college were less likely to have had recent vocational school experience than those with only 4 years of high school. But for persons 25 years old and over, those with 1 to 3 years of college were more likely than those with only 4 years of high school to have recent vocational school experience. Men and women in the younger age group were about equally likely to have had recent vocational school experience, but men in the older age group were more likely than women to have had recent vocational school experience.

FIELD OF VOCATIONAL TRAINING

Table G contains a distribution of persons with recent vocational school experience by their field of training. This table shows significant differences between the vocational training preferences of men and women. For example, the largest proportion (47 percent) of the men were taking training in the trade field, whereas the largest proportion (37 percent) of women were taking the training in office fields. Relatively large proportions of women were taking courses in health fields (20 percent) and in technical or trade fields (27 percent).

Many persons with recent vocational school experience were employed (87 percent of men and 65 percent of women) and those taking training were often enrolled in

Table E. Years of School Completed for High School Graduates 18 Years Old and Over, by Vocational School Experience, and Sex: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Years of school completed and sex	18 years old and over		
	All high school graduates[1]	With vocational school experience[2]	Without vocational school experience
BOTH SEXES			
Total	99,030	6,446	79,312
Percent	100.0	100.0	100.0
High school: 4 years	55.8	49.8	60.5
College: 1 to 3 years	23.9	26.9	19.4
4 years or more	20.3	23.2	20.1
MALE			
Total	46,584	3,420	36,431
Percent	100.0	100.0	100.0
High school: 4 years	50.0	45.8	54.7
College: 1 to 3 years	25.1	26.7	20.3
4 years or more	24.9	27.5	25.0
FEMALE			
Total	52,445	3,025	42,881
Percent	100.0	100.0	100.0
High school: 4 years	60.9	54.4	65.5
College: 1 to 3 years	22.8	27.2	18.7
4 years or more	16.3	18.3	15.8

[1] Includes persons who were enrolled in regular school or did not report on vocational school experience, not shown separately.

[2] Includes those who attended vocational school in October 1976 or during the preceding 12 months.

courses related to their current employment. Table H provides a cross-tabulation of the current occupation of employed persons with recent vocational school experience by their field of vocational training. Employed persons usually had their recent vocational training experience in fields which appear relevant to their current occupation probably because they were taking training to improve their current job skills.

However, some fields of vocational training were selected more often than others depending on the occupation of the person. For example, vocational courses in the trades field (listed in the definitions section) were taken by men employed in almost every major occupational category; whereas, men employed in sales or technical fields were most likely to have taken courses relevant to those occupations. Men with recent vocational school experience who were employed as managers and administrators were about equally likely to have taken training in the sales, office, or the trade fields, probably depending on the type of business in which they were employed.

Women with recent vocational training experience were most likely to have this training in an office field, although women employed in occupations related to sales, health, or technical fields were more likely to have training in a field similar to their occupations than in office fields.

A substantial percentage of men and women who had recent vocational school experience were not in the labor force, 7 percent and 27 percent respectively. Training in the manual and mechanical trades was the most common field of training for these men (53 percent), and office training was the most common field of training for these women (33 percent). Persons not in the labor force were probably taking this training to facilitate their entrance into the labor force in related occupations.

Persons who had recent vocational school experience and who were taking vocational training for occupational reasons were asked to report for which occupation they were taking the training. Responses to this question indicated whether the respondent was likely to be attending class to advance in his or her current occupation or whether the training might be used to enter into another occupational category. The relationship between the current occupation and occupational goals for men and women is shown in tables I and J. A large proportion of persons enrolled in vocational courses

Table F. Vocational School Experience of High School Graduates 18 Years Old and Over by Years of School Completed, Sex, and Age: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Years of school completed and sex	18 to 24 years old		25 years old and over	
	All high school graduates	Percent with vocational school experience[1]	All high school graduates	Percent with vocational school experience[1]
BOTH SEXES				
Total	21,676	8.4	77,352	6.0
High school: 4 years	12,074	9.8	43,145	4.7
College: 1 to 3 years	7,416	6.5	16,247	7.7
4 years or more	2,186	7.2	17,960	7.4
MALE				
Total	10,311	8.5	36,272	7.0
High school: 4 years	5,557	10.3	17,727	5.6
College: 1 to 3 years	3,629	6.1	8,069	8.6
4 years or more	1,125	7.4	10,476	8.2
FEMALE				
Total	11,366	8.3	41,080	5.1
High school: 4 years	6,518	9.4	25,418	4.1
College: 1 to 3 years	3,787	6.9	8,178	6.9
4 years or more	1,061	7.0	7,484	6.4

[1] Includes those who attended vocational school in October 1976 or during the preceding 12 months.

Table G. Field of Training for Persons 18 Years Old and Over With Vocational School Experience, by Sex: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Field of vocational training	Total[1]	Male[1]	Female[1]
Total with vocational school experience	7,149	3,759	3,390
Total reporting a field of training	5,957	3,108	2,849
Percent	100.0	100.0	100.0
Agriculture	1.9	2.4	1.4
Sales	10.5	11.5	9.4
Health	12.7	6.0	19.9
Home economics	3.2	0.8	5.9
Office	24.8	14.1	36.5
Technical	14.3	17.8	10.5
Trades	32.6	47.4	16.4

[1] Includes those who attended vocational school in October 1976 or during the preceding 12 months.

were employed in white-collar occupations. This result shows that blue-collar workers are not the only participants in vocational training programs.

Persons stating that their occupational goal and current occupation were similar were probably taking training to improve their job skills, while those who were taking training with a different occupational goal may have been planning to enter a different occupational field. About one-half of all men and 63 percent of all women reported occupational goals similar to their current occupation. Men with recent vocational training experience who were employed in the professional, managerial, sales, and crafts occupations were most likely to indicate that their training was for the same area as their current occupation. Women in the professional fields were most likely to be training in the same occupational field, and there was some evidence that women employed in the clerical and service worker fields were training for employment in the same fields. Persons with recent vocational training experience who were employed in professional and technical occupations were the most likely to have an occupation similar to their goal, while those employed as operatives and laborers were the least likely to have had an occupational training goal similar to their current occupation. This may suggest that persons employed

Table H. Field of Training for Persons 18 Years Old and Over With Vocational School Experience, by Labor Force Status, Current Occupation, and Sex: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Labor force status, current occupation, and sex	Total with vocational school experience[1]	Percent	Field of vocational training						
			Agriculture	Sales	Health	Home economics	Office	Technical	Trades
Total men[2]	3,108	100.0	2.4	11.5	6.0	0.8	14.1	17.8	47.4
In civilian labor force	2,900	100.0	2.4	11.7	5.9	0.8	14.6	17.7	47.0
Employed	2,715	100.0	2.5	11.9	6.2	0.8	14.8	18.1	45.8
Professional, technical, and kindred workers	547	100.0	0.4	3.8	19.4	0.5	18.8	38.9	18.3
Managers and administrators except farm	331	100.0	2.1	27.5	2.4	1.8	27.2	17.2	21.8
Sales workers	224	100.0	1.3	63.8	0.9	1.3	12.5	5.8	14.3
Clerical and kindred workers	170	100.0	-	11.8	1.8	-	31.8	20.6	35.5
Craft and kindred workers	671	100.0	1.2	2.8	2.8	0.3	6.0	13.1	73.9
Transport equipment operatives	85	100.0	7.1	7.1	1.2	-	3.5	12.9	67.1
Operatives except transport	257	100.0	1.2	4.3	0.8	-	14.8	16.0	63.0
Service workers except private household	245	100.0	1.6	3.3	9.8	2.9	9.8	8.6	64.1
Farm workers	63	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)
Laborers except farm	126	100.0	5.6	4.0	1.6	-	15.9	8.7	65.1
Not in civilian labor force	208	100.0	1.9	9.6	7.7	1.4	7.2	19.7	52.9
Total women[2]	2,849	100.0	1.4	9.4	19.9	5.9	36.5	10.5	16.4
In civilian labor force	2,073	100.0	1.3	10.6	19.7	5.2	37.8	12.1	13.4
Employed	1,840	100.0	1.3	11.7	20.3	5.5	35.2	12.7	13.3
Professional, technical, and kindred workers	444	100.0	1.1	4.7	34.9	3.4	14.9	32.0	9.2
Managers and administrators except farm	132	100.0	3.8	23.5	7.6	15.2	31.8	9.1	9.1
Sales workers	157	100.0	-	61.8	3.2	1.9	19.7	3.2	10.2
Clerical and kindred workers	664	100.0	-	9.2	8.7	3.9	61.4	8.6	8.3
Craft and kindred workers	18	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)
Transport equipment operatives	11	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)
Operatives except transport	56	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)
Service workers except private household	333	100.0	2.4	0.9	40.8	9.3	17.4	2.4	26.4
Farm workers	18	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)
Laborers except farm	11	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)
Not in civilian labor force	776	100.0	1.8	6.1	20.6	7.9	33.0	6.2	24.5

- Represents zero or rounds to zero.
B Base less than 75,000.
[1]Excludes all persons with vocational field not elsewhere classified and not reported.
[2]Includes those who attended vocational school in October 1976 or during the preceding 12 months.

as operatives or laborers were likely to have been attending a class in vocational school to change their occupation in the future.

FAMILY INCOME

In October 1976, there were 14.2 million dependent family members 18 to 24 years old; most of these young adults were sons or daughters living in the home of their parents. Among all dependent family members 18 to 24 years old, 4 percent were enrolled in vocational school, 6 percent were in high school, 39 percent were enrolled in college, and 52 percent were not enrolled in school. Table K indicates the type of schooling these persons were taking by family income. A relatively small proportion of dependent family members 18 to 24 years old from families in the higher income categories were not enrolled in high school, college, or vocational school; for example, only 37 percent of persons in families with $25,000 or more were not enrolled in school. However, a considerably higher percentage of dependent family members from lower family income levels were not enrolled in high school, college, or vocational school—65 percent of persons in families with less than $5,000 annual income. There were no significant differences in enrollment rates of persons attending vocational school by family income.

RELATED REPORTS

Additional data on vocational training can be obtained in Census of Population: 1970 **Subject Reports**, Final Report PC(2)-5C, Vocational Training.

Statistics on school enrollment patterns in 1976 for students attending nursery school through college by demographic and socioeconomic characteristics were presented in **Current Population Reports**, Series P-20, No. 319, "School Enrollment—Social and Economic Characteristics of Students: October 1976."

The National Center for Education Statistics, Department of Health, Education, and Welfare recently issued a publication using some of the data contained in this report in the **Occupational Education** series, titled, "Women in Vocational Education."

Table I. Current Occupation and Occupational Goals of Employed Persons 18 Years Old and Over, With Vocational School Experience, by Sex: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Occupation	Current occupation		Occupational goal[1]	
	Male	Female	Male	Female
Total persons with vocational school experience[2]	3,311	2,213	2,756	1,797
Percent	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	21.7	23.8	22.2	25.4
Managers and administrators except farm	14.5	7.1	14.9	7.4
Sales workers	7.6	7.9	7.5	8.2
Clerical and kindred workers	6.5	37.5	6.0	35.7
Craft and kindred workers	22.9	0.7	23.1	0.8
Operatives	11.8	4.4	10.8	3.3
Service workers except private household	8.3	17.2	9.0	18.0
Farm workers	2.2	0.8	2.1	0.8
Laborers except farm	4.6	0.6	4.5	0.4

[1]Excludes persons with occupational goal not reported and persons not taking occupational training.

[2]Includes those who attended vocational school in October 1976 or during the preceding 12 months.

Table J. Percent With Occupational Goals in the Same Field for Employed Persons 18 Years Old and Over With Vocational School Experience, by Current Occupation: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Current occupation	Male		Female	
	Total employed with vocational school experience[1]	Percent with occupational goal in same field as current occupation	Total employed with vocational school experience[1]	Percent with occupational goal in same field as current occupation
Total employed[2]	3,227	51.4	2,155	63.2
Professional, technical and kindred workers	706	73.1	521	79.5
Managers and administrators except farm	470	58.1	153	47.1
Sales workers	242	60.3	172	58.1
Clerical and kindred workers	207	25.6	799	54.7
Craft and kindred workers	736	62.1	15	(B)
Transport equipment operatives	104	8.7	14	(B)
Operatives except transport	272	14.7	81	11.1
Service workers except private household	272	48.5	370	56.2
Farm workers	69	(B)	18	(B)
Laborers except farm	151	3.3	13	(B)

B Base less than 75,000.

[1]Includes those who attended vocational school in October 1976 or during the preceding 12 months.

[2]Excludes persons with occupational goal not reported.

Table K. Regular School or Vocational School Enrollment, by Family Income for Dependent Family Members 18 to 24 Years Old: October 1976

(Numbers in thousands. Civilian noninstitutional population)

Enrollment status, age, and sex	Total[1]	Family income					
		Under $5,000	$5,000 to $9,999	$10,000 to $14,999	$15,000 to $19,999	$20,000 to $24,999	$25,000 and over
BOTH SEXES							
Total, 18 to 24 years old.....	14,222	1,353	2,277	2,700	2,198	1,737	2,474
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled below college.....	6.0	11.4	8.5	6.7	4.5	3.2	2.3
Enrolled in college.....	38.8	20.3	25.1	34.2	42.3	50.1	57.7
Enrolled in vocational school.....	3.6	3.2	4.3	3.9	3.5	4.8	3.1
Not enrolled in school[2].....	51.6	64.9	61.4	54.9	49.4	41.6	36.5
MALE							
Total, 18 to 24 years old.....	7,941	707	1,273	1,496	1,274	955	1,411
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled below college.....	7.0	14.1	10.0	8.4	5.3	3.2	2.1
Enrolled in college.....	35.3	17.1	21.4	30.0	38.3	45.1	54.0
Enrolled in vocational school.....	3.4	4.0	3.5	3.5	3.1	5.4	3.0
Not enrolled in school[2].....	54.4	64.6	63.8	57.7	52.9	45.9	40.0
FEMALE							
Total, 18 to 24 years old.....	6,281	646	1,004	1,205	924	782	1,063
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled below college.....	4.8	8.4	6.6	4.7	3.4	3.3	2.6
Enrolled in college.....	43.2	23.8	29.9	39.4	47.8	56.1	62.6
Enrolled in vocational school.....	3.9	2.3	5.2	4.2	3.9	4.1	3.1
Not enrolled in school[2].....	48.0	65.0	58.2	51.5	44.5	36.2	31.0

[1] Includes persons with family income not reported, not shown separately.
[2] Includes persons with enrollment in vocational school not reported.

METHODOLOGICAL NOTE

Previous analyses of response errors to questions on vocational training have shown that individuals are not likely to provide highly reliable answers to questions on whether they had completed a vocational training program. Although no such analysis was conducted for the series of questions used in the October 1976 Current Population Survey, two studies on the reliability of reporting have been conducted, one in 1970, based on the 1970 Census of Population, and another in 1976, based on the National Content Test for the 1980 census.

In the 1970 Census of Population 5-percent sample, persons 14 years old and over answered a two-part question on vocational training and their main field of study.[1] Respondents were instructed to count only programs that were finished; to include Job Corps training; to omit courses which were not part of an organized program of study, training received on the job, in a company school, in college after the second year, by correspondence, or in basic training in the Armed Forces. Under these circumstances, a wide range of training experiences may have been reported as vocational, including those that are without question vocational as well as those that were more marginal in nature.

A reinterview of 5,000 households was conducted in which persons were questioned in detail about any training that *might be* considered vocational; if a potential training program was detected, a series of questions was asked for the purpose of obtaining data on the nature of the program. These data included the field of training, where or how the training was received, whether the training program was completed, the year the training was received, the usefulness of the training in a civilian job, and the number of weeks and hours spent in the training program. The data also provided a basis for identifying those persons having training experiences which were clearly not to be reported as vocational training according to the respondent and enumerator instructions, as well as those having no training experience.

In 1976, further evaluation of the vocational training item was made possible by the National Content Test.[2] Since the 1970 census evaluation study showed that a high percentage of persons who reported "Yes" on vocational training actually did not complete a program, a new question format

[1] See U.S. Bureau of the Census, Census of Population and Housing: 1970, Evaluation and Research Program PHC(E)-9, Accuracy of Data for Selected Population Characteristics as Measured by Reinterviews, pp. 15-23.

[2] Results Memorandum Number 16, from David L. Kaplan, "Evaluation of the 1976 Reinterview Survey for School Enrollment, Educational Attainment, and Vocational Training," prepared by Larry E. Suter, December 16, 1978.

was attempted in the National Content Test to clarify the type of training that should be reported. The questionnaire specified that only persons who had received a certificate in vocational training should report they completed a vocational program; also the length of the program of study was obtained so that persons who had attended for short periods could be separated from those with more extensive training. When these persons were interviewed, more detail about the attended program was requested.

Of the persons identified on the census form as having completed a training program which might qualify as vocational, only about 62 percent reported completing a vocational training program in the reinterview questionnaire. On the other hand, a significant number of the persons who said they had not completed a program, did say so in the reinterview (9 percent). In general, the types of vocational programs most completely reported include those that currently were being used in the job, those that involved 2,000 or more hours of training, and those that were taken in a trade or technical school.

A large number of persons erroneously reported completing a vocational training program in the census. The reinterview data show that about 38 percent of the persons who reported completing a vocational program on the census questionnaire had not done so by the census definition. About 29 percent reported training experiences which were clearly not to be reported as vocational according to the census instructions, and an additional 9 percent indicated in the reinterview that they had never received any type of training that might be considered as vocational.

A comparison of the responses to the mailout questionnaire and the reinterview indicated that the detailed questions were not more reliable than the responses received in the 1970 census item on vocational training, although the question was more specific. A smaller proportion of the population, about 13 percent of persons in the mailout questionnaire and about 11 percent of persons in the reinterview, were found to have received a certificate. About one-half of those who reported having received a certificate in the mailout survey did not report it in the follow-up reinterview. Also, a large number of persons who reported that they had not completed a program in the mailout questionnaire were reported as attending and completing a vocational program in the reinterview.

Information gained from the National Content Test suggests that the meaning of "vocational training" may not be clear to respondents, which may be partly due to the lack of a national consensus on the meaning of a vocational education program. The amount of variation in the type of training which *might be* considered vocational (such as the addition of adult education programs in colleges in recent years) is so great that summary measures are not highly successful. Vocational training may occur in many different forms, thus making it difficult to distinguish occupational education from courses intended for nonoccupational reasons.

Appendix A. Definitions and Explanations

Population coverage. The figures shown are for the civilian noninstitutional population.

Symbols. A dash "–" represents zero or rounds to zero, and the symbol "B" means that the base for the derived figures is less than 75,000. Three dots "..." mean not applicable, and "NA" means not available.

School enrollment. The school enrollment statistics from the current surveys are based on replies to the enumerator's inquiry as to whether the person was enrolled in school. Enumerators were instructed to count as enrolled anyone who had been enrolled at any time during the current term or school year in any type of graded public, parochial, or other private school in the regular school system. Such schools include nursery schools, kindergartens, elementary schools, high schools, colleges, universities, and professional schools. Attendance may be on either a full-time or part-time basis and during the day or night. Thus, regular schooling is that which may advance a person toward an elementary or high school diploma, or a college, university, or professional school degree. Children enrolled in nursery schools and kindergarten are included in the enrollment figures for "regular" schools, and are also shown separately.

"Special" schools are those which are not in the regular school system, such as trade schools or business colleges. Persons attending "special" schools are not included in the enrollment figures.

Persons enrolled in classes which do not require physical presence in school, such as correspondence courses or other courses of independent study, and in training courses given directly on the job, are also excluded from the count of those enrolled in school, unless such courses are being counted for credit at a "regular" school.

College enrollment. The college enrollment statistics are based on replies to the enumerator's inquiry as to whether the person was attending or enrolled in college. Enumerators were instructed to count as enrolled anyone who had been enrolled at any time during the current term or school year, except those who have left for the remainder of the term. Thus, regular college enrollment includes those persons attending a 4-year or 2-year college, university, or professional school (such as medical or law school), in courses that may advance the student toward a recognized college or university degree (e.g. BA or MA). Attendance may be either full time or part time, during the day or night.

Age. The age classification is based on the age of the person at his last birthday.

Race. The population is divided into three groups on the basis of race: White, Black, and "other races." The last category includes Indians, Japanese, Chinese, and any other race except White and Black.

Spanish origin. Information on origin or descent was obtained by asking "What is (this person's) origin or descent?" Responses generally refer to a person's perceived national or ethnic lineage and do not necessarily indicate the country of birth of himself or his parents. The category Spanish origin includes persons of Mexican, Puerto Rican, Central or South American, and other Spanish origin.

Marital status. The marital status category shown in this report, "married, spouse present," includes persons who are currently married and living with their spouse.

Family. The term "family," as used here, refers to a group of two persons or more related by blood, marriage, or adoption and residing together; all such persons are considered as members of one family.

Primary family. A primary family is a family that includes among its members the person or couple who maintains the household.

Head of family. One person in each family residing together was designated as the head. The head of a family is usually the person regarded as the head by members of the family. Women are not classified as heads if their husbands are resident members of the family at the time of the survey.

Primary family members. All members of the family that includes the person or couple who maintains the household are considered primary family members.

Dependent family members. For the purpose of this report, a dependent family member is a relative of the person or couple maintaining that household. Such persons are generally sons and daughters living in the home of their parents. Family members who are living away from home while attending college are also counted as dependent family members.

Years of school completed. Data on years of school completed in this report were derived from the combination of answers to two questions: (a) "What is the highest grade of school he has ever attended?" and (b) "Did he finish this grade?"

The questions on educational attainment apply only to progress in "regular" schools. Such schools include graded public, private, and parochial elementary and high schools

(both junior and senior high), colleges, universities, and professional schools, whether day schools or night schools. Thus, regular schooling is that which may advance person toward an elementary school certificate, high school diploma, or a college, university, or professional school degree. Schooling in other than regular schools was counted only if the credits obtained were regarded as transferable to a school in the regular school system.

Family income. Income as defined in this report represents the combined total money income of the family before deductions for personal taxes, Social Security, bonds, etc. It is the algebraic sum of money wages and salaries, net income from self-employment, and income other than earnings received by all family members during the 12 months prior to the surveys. It should be noted that although the family income statistics refer to receipts during the previous 12 months, the characteristics of the person, such as age, marital status, etc., and the composition of families refer to the date of the survey.

The income tables include in the lowest income group those who were classified as having no income in the previous 12 months and those reporting a loss in net income from farm and nonfarm self-employment or in rental income.

The detailed income tables in this report include a separate category for families for which no income information was obtained. In most of the other Current Population Survey Reports showing income data, the missing income data have been allocated.

The money income level of families shown in this report may be somewhat understated. Income data from the October control card are based on the respondent's estimate of total family money income for the preceding 12 months coded in broad, fixed income intervals. Income data collected in the March supplement to the Current Population Survey are based on responses to 11 direct questions asked of all persons 14 years old and over identifying 23 different sources of income and cover the preceding calendar year. (See table A-1.)

Previous research has shown that the use of broad income intervals to record money income tends to reduce the rate of nonreporting while increasing the likelihood that the amounts reported will be significantly understated as compared with results from more detailed questions.

Labor force and employment status. The definitions of labor force and employment status in this report relate to the population 14 years old and over.

Employed. Employed persons comprise (1) all civilians who, during the specified week, did any work at all as paid employees or in the their own business or profession, or on their own farm, or who worked 15 hours or more as unpaid workers on a farm or in a business operated by a member of the family, and (2) all those who were not working but who had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, or labor-management dispute, or because they were taking time off for personal reasons whether or not they were paid by their employers for time off, and whether or not they were seeking other jobs. Excluded from the employed group are persons whose only activity consisted of work around the house (such as own home housework, painting or repairing own home, etc.) or volunteer work for religious, charitable, and similar organizations.

Unemployed. Unemployed persons are those civilians who, during the survey week had no employment but were available for work and (1) had engaged in any specific jobseeking activity *within the past 4 weeks,* such as registering at a public or private employment office, meeting with prospective employers, checking with friends or relatives, placing or answering advertisements, writing letters of application, or being on a union or professional register; (2) were waiting to be called back to a job from which they had been laid off; or (3) were waiting to report to a new wage or salary job within 30 days.

Labor force. Persons are classified as in the labor force if they were employed as civilians, unemployed, or in the Armed Forces during the survey week. The "civilian labor force" is comprised of all civilians classified as employed or unemployed.

Not in the labor force. All civilians 14 years old and over who are not classified as employed or unemployed are defined as "not in the labor force." This group who are neither employed nor seeking work includes persons engaged only in own home housework, attending school, or unable to work because of long term physical or mental illness; persons who are retired or too old to work, seasonal workers for whom the survey week fell in an off season; and the voluntarily idle. Persons doing only unpaid family work less than 15 hours are also classified as not in the labor force.

Vocational school experience. This information was elicited by asking, "Is . . . taking any business, vocational, technical, or correspondence courses other than on-the-job training?" Those answering "Yes" were currently enrolled. Those answering "No" to this question were asked, "Has . . . attended any business, vocational, or technical schools during the past 12 months?" These questions identified persons currently taking or recently taking courses other than "regular" high school or college courses and includes all types of *postsecondary* training. Examples are persons studying to be apprentices in a construction field with formal classroom instructions, persons attending secretarial school, persons attending barber school, as well as persons enrolled in such classes which do not require their physical presence, such as correspondence courses.

Attendance status. Vocational school students who were enrolled in October 1976 were classified according to whether they were attending on a full-time, part-time, or corre-

spondence basis. If the respondent was unsure of his or her attendance status, the enumerator attempted to elicit whether the school classified the student into these categories. If not, the "other—not classifiable" category was recorded.

Attendance at business, vocational, or technical school during the past 12 months. This item was intended to determine if respondents answering "No" to the vocational school experience item (item 42) had been enrolled in vocational school at any time during the previous year.

Field of vocational training. The purpose of item 45 was to elicit the type of course the respondent was taking. Respondents provided a specific field of training and these fields were classified into major groups of vocational training categories. The write-in entry on field of study was coded into the following categories:

Agriculture
Sales
- Insurance
- Real estate
- Other sales fields

Health
- Nursing (RN)
- Service aides
- Technicians or therapists
- Other health fields

Home Economics
Office
- Secretarial
- Bookkeeping or accounting
- Office machine operator
- Other office fields

Technical
- Computer programmer, data processing, analyst
- Electronics
- Other computer fields
- Engineering or mechanical technology
- Other technical fields

Trades
- Auto mechanic
- Other mechanic
- Appliance and machine repair
- Art and printing
- Construction trades
- Cosmetology or barber training
- Protection service
- Metal trades
- Other trade fields

Occupational training and occupational goal. Respondents were asked whether they were enrolled in vocational school to receive occupational training. If they were, they reported their occupational goals. For those not taking a course for occupational training such as for personal information or enjoyment, the "none, not occupational training" category was recorded.

Current occupation. The data on current occupation refer to the job held during the survey week. Persons employed at two or more jobs were reported in the job at which they worked the greatest number of hours during the week.

Current Population Survey items on vocational training analyzed in this report are presented below:

42. Is . . . taking any business, vocational, technical, or correspondence courses other than on the job training?
(Show CPS-658 Flashcard)
Yes *(Ask 43)*
No *(Skip to 44)*

43. Is . . . attending full-time or part-time? *(Mark one circle only)*
Part-time . . . . . .
Full-time . . . . . .
Other – not classifiable . .
Correspondence course . . . ■
(Skip to 45)

44. Has . . . attended any business, vocational, or technical schools during the past 12 months?
Yes *(Ask 45)*
No *(Skip to 47)*

45. What type of training is . . . taking (did . . . take) at . . . school?
(Ask 46)

46. For what occupation is . . . taking (did . . . take) this training?
None, not occupational training ■
(Fill 47)

Rounding of estimates. Individual figures are rounded to the nearest thousand without being adjusted to group totals, which are independently rounded. With few exceptions, percentages are based on the rounded absolute numbers.

Table A-1. October CPS Control Card Family Income and March CPS Supplement Family Income: 1967 to 1976

Year	Median family income, October control card	Percent change	Median family income, March supplement	Percent change	October-March ratio
1967	$6,575	...	$7,974	...	0.82
1968	7,060	7.4	8,632	8.3	0.82
1969	7,692	9.0	9,433	9.3	0.82
1970	8,093	5.2	9,867	1.6	0.82
1971	8,479	4.8	10,285	4.2	0.82
1972	9,115	7.5	11,116	8.1	0.82
1973	10,156	11.4	12,051	8.4	0.84
1974[r]	10,650	4.9	12,836	6.5	0.83
1974	10,650	...	12,902	...	0.83
1975	11,031	3.6	13,719	6.3	0.80
1976	11,644	5.6	14,958	9.0	0.78

[r] March 1974 figures revised.

... Not applicable.

Appendix B. Source and Reliability of the Estimates

SOURCE OF DATA

The estimates of vocational school experience in 1976 are based on data obtained in October of 1976 in the Current Population Survey (CPS) conducted by the Bureau of the Census. The CPS sample was initially selected from the 1970 census file and is updated continuously to reflect new construction where possible. The current sample is spread over 461 areas with coverage in each of the 50 States and the District of Columbia. In the sample, approximately 47,000 households are eligible for interview each month. Of this number, 2,000 occupied housing units on the average, are visited but interviews are not obtained because the occupants are not found at home after repeated calls or are unavailable for some other reason. In addition to the 47,000, there are also about 8,000 sample units in an average month which are visited but are found to be vacant or otherwise not to be interviewed.

The estimating procedure used for the monthly CPS data involves the inflation of the weighted sample results to independent estimates of the total civilian noninstitutional population of the United States by age, race, and sex. These independent estimates are based on statistics from decennial censuses; statistics on births, deaths, immigration and emigration; and statistics on the strength of the Armed Forces.

RELIABILITY OF THE ESTIMATES

Since the CPS estimates in this report were based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken using the same questionnaires, instructions, and enumerators. There are two types of errors possible in an estimate based on a sample survey—sampling and nonsampling. The standard errors provided for this report primarily indicate the magnitude of the sampling errors. They also partially measure the effect of some nonsampling errors in response and enumeration, but do not measure any systematic biases in the data. The full extent of the nonsampling error is unknown. Consequently, particular care should be exercised in the interpretation of figures based on a relatively small number of cases or on small differences between estimates.

Nonsampling variability. Nonsampling errors can be attributed to many sources, e.g., inability to obtain information about all cases in the sample, definitional difficulties, differences in the interpretation of questions, inability or unwillingness to provide correct information on the part of respondents, inability to recall information, errors made in collection such as in recording or coding the data, errors made in processing the data, errors made in estimating values for missing data, and failure to represent all units with the sample (undercoverage).

Undercoverage in the CPS results from missed housing units and missed persons within sample households. Overall undercoverage, as compared to the level of the decennial census, is about 5 percent. It is known that CPS undercoverage varies with age, sex, and race. Generally, undercoverage is larger for males than for females and larger for Blacks and other races than for Whites. Ratio estimation to independent age-sex-race population controls, as described previously, partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics than interviewed persons in the same age-sex-race group. Further, the independent population controls used have not been adjusted for undercoverage in the 1970 census, which was estimated at 2.5 percent of the population, with similar undercoverage differentials by age, sex, and race as in CPS.

The approximate magnitude of two sources of undercoverage of housing units is known. Of the 83,000,000 housing units in the U.S., about 600,000 new construction housing units other than mobile homes are not represented in the CPS sample because they were assigned building permits prior to January 1970, but building was not completed by the time of the census (i.e., April 1970). Almost all conventional new construction, for which building permits were issued after 1969, is represented. About 290,000 occupied mobile homes are not represented in CPS; these units were either missed in the census or have been built or occupied since the census. These estimates of missed units are relevant to the present sample only and not to earlier designs where the extent of undercoverage was generally less. The extent of other sources of undercoverage of housing units is unknown but believed to be small.

Sampling variability. The standard errors given in the following tables are primarily measures of sampling variability, that is, of the variations that occurred by chance because a sample rather than the entire population was surveyed. The sample estimate and its estimated error enable one to construct confidence intervals, ranges that would include the average result of all possible samples with a known probability. For example, if all possible samples were

selected, each of those surveyed under essentially the same general conditions and using the same sample design, and an estimate and its estimated standard error were calculated from each sample, then:

1. Approximately 68 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the average result of all possible samples.
2. Approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples.
3. Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with a specified confidence that the average estimate derived from all possible samples is included in the confidence interval.

All the statements of comparison appearing in the text are significant at a 1.6 standard error level or better, and most are significant at a level of more than 2.0 standard errors. This means that for most differences cited in the text, the estimated difference is greater than twice the standard error of the difference. Statements of comparison qualified in some way (e.g., by use of the phrase, "some evidence") have a level of significance between 1.6 and 2.0 standard errors.

Comparability with other data. Caution should be used when comparing income data from this report with the March Supplemental Income Data. For a further discussion of this see the definition and explanation for family income in Appendix A of this report.

Note when using small estimates. Summary measures (such as percent distributions) are shown in the report only when the base of the measure is 75,000 or greater. Because of the large standard errors involved, there is little chance that summary measures would reveal useful information when computed on a smaller base. Estimated numbers are shown, however, even though the relative standard errors of these numbers are larger than those for corresponding percentages. These smaller estimates are provided primarily to permit such combinations of the categories as serve each user's need.

Standard error tables and their use. In order to derive standard errors that would be applicable to a large number of estimates and could be prepared at a moderate cost, a number of approximations were required. Therefore, instead of providing an individual standard error for each estimate, generalized sets of standard errors are provided for various types of characteristics. As a result, the sets of standard errors provided give an indication of the order of magnitude of the standard error of an estimate rather than the precise standard error.

The figures in tables B-1 and B-2 provide approximations to standard errors of estimated numbers and estimated percentages. Standard errors for intermediate values not shown in the generalized tables of standard errors may be approximated by linear interpolation. Estimated standard errors for specific characteristics cannot be obtained from tables B-1 or B-2 without the use of factors in table B-3. These factors must be applied to the generalized standard errors in order to adjust for the combined effect of sample design and estimating procedure on the value of the characteristic.

Two parameters (denoted "a" and "b") are used to calculate standard errors for each type of characteristic; they are presented in table B-3. These parameters were used to calculate the standard errors in tables B-1 and B-2, and to calculate the factors in table B-3. They also may be used to directly calculate the standard errors for estimated numbers and percentages. Methods for direct computation are given in the following sections.

Standard errors of estimated numbers. The approximate standard error, σ_x, of an estimated number shown in this report can be obtained in two ways. It may be obtained by use of the formula

$$\sigma_x = f\sigma \qquad (1)$$

where f is the appropriate factor from table B-3, and σ is the standard error on the estimate obtained by interpolation from table B-1. Alternatively, standard errors may be approximated by formula (2) from which the standard errors were calculated in table B-1. Use of this formula will provide more accurate results than the use of formula (1) above.

$$\sigma_x = \sqrt{ax^2 + bx} \qquad (2)$$

Here x is the size of the estimate and a and b are the parameters in table B-3 associated with the particular type of characteristic.

Standard errors of estimated percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends upon both the size of the percentage and the size of the total upon which the percentage is based. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. When the numerator and denominator of the percentage are in different categories, use the factor or parameters from table B-3 indicated by the numerator. The approximate standard error, $\sigma_{(x,p)}$, of an estimated percentage can be obtained by use of the formula

$$\sigma_{(x,p)} = f\sigma \qquad (3)$$

In this formula f is the appropriate factor from table B-3, and σ is the standard error on the estimate from table B-2. Alternatively, standard errors may be approximated by formula (4), for which standard errors in table B-2 were

calculated; direct computation will give more accurate results than use of the standard error tables and the factors.

$$\sigma_{(x,p)} = \sqrt{\frac{b}{x} \cdot p\,(100 - p)} \qquad (4)$$

Here x is the size of the subclass of persons, families and unrelated individuals, households, householders or primary individuals which is the base of the percentage, p is the percentage ($0 \leq p \leq 100$), and b is the parameter in table B-3 associated with the particular type of characteristic in the numerator of the percentage.

Illustration of the use of standard error tables. Table B of this report shows that 227,000 Blacks, 14 years and over had attended vocational school in October 1976. Table B-1 shows that the standard error on an estimate of this size to be approximately 22,000. Applying the appropriate factor from table B-3 and using formula (1), the approximate standard error is 1.16 x 22,000 = 26,000[1]. The 68-percent confidence interval as shown by the data is from 201,000 to 253,000. Therefore a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 68 percent of all samples. Similarly we could conclude that the average estimate derived from all possible samples lies within the interval from 175,000 to 279,000 (using twice the standard error) with 95-percent confidence.

These 227,000 Blacks who had attended vocational school in October 1976 represented 41.1 percent of the 552,000 Blacks, 14 years and over with recent vocational school experience. Since the numerator of this percentage is Blacks with vocational school training, the appropriate b parameter from table B-3 is 2,792. Using formula (4), the standard error on an estimate of 41.1 percent is

$$\sqrt{\frac{2{,}792}{552{,}000}\,(41.1)\,(58.9)} \doteq 3.5 \text{ percent}^2$$

[1] Formula (2) for this example also gives a standard error of 26,000.

[2] Table B-2 and formula (3) give a standard error of 3.3 percent.

Table B-1. Standard Errors of Estimated Numbers

(Numbers in thousands)

Size of estimate	Standard error	Size of estimate	Standard error
25	7	5,000	100
50	10	10,000	138
100	14	15,000	165
250	23	25,000	204
500	32	50,000	251
1,000	45	100,000	215
2,500	71		

Note: For particular characteristic see table B-3 for the appropriate factor to apply to the above standard errors.

Table B-2. Standard Errors of Estimated Percentages

Base of estimated percentage (thousands)	Estimated percentage					
	1 or 99	2 or 98	5 or 95	10 or 90	25 or 75	50
75	1.7	2.3	3.6	5.0	7.2	8.3
100	1.4	2.0	3.1	4.3	6.2	7.2
250	0.9	1.3	2.0	2.7	3.9	4.5
500	0.6	0.9	1.4	1.9	2.8	3.2
1,000	0.5	0.6	1.0	1.4	2.0	2.3
2,500	0.3	0.4	0.6	0.9	1.2	1.4
5,000	0.2	0.3	0.4	0.6	0.9	1.0
10,000	0.14	0.2	0.3	0.4	0.6	0.7
15,000	0.12	0.2	0.3	0.4	0.5	0.6
25,000	0.09	0.13	0.2	0.3	0.4	0.5
50,000	0.06	0.09	0.14	0.2	0.3	0.3
100,000	0.05	0.06	0.10	0.14	0.2	0.2

Note: For a particular characteristic see table B-3 for the appropriate factor to apply to the above standard errors.

Consequently, the 68 percent confidence interval as shown by these data is from 37.6 to 44.6 percent, and the 95 percent confidence interval is 34.1 to 48.1 percent.

Standard error of a difference. For a difference between two sample estimates, the standard error is approximately equal to

$$\sigma_{(x-y)} = \sqrt{\sigma_x^2 + \sigma_y^2} \qquad (5)$$

where σ_x and σ_y are the standard errors of the estimates x and y; the estimates can be of numbers, percents, ratios, etc. This will represent the actual standard errors quite accurately for the difference between two estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. If, however, there is a high positive (negative) correlation between the two characteristics, the formula will overestimate (underestimate) the true standard error.

Illustration of the computation of the standard error of a difference. Table B of this report also shows that 4.6 percent of all Whites 14 years and over had recent vocational school experience in October 1976, while 3.2 percent of all Blacks 14 years and over had recent vocational school experience. The apparent difference between the percent of Whites and Blacks with recent vocational school experience in October 1976 is 1.4 percent. The standard error on the 4.6 percent of Whites with vocational school experience is 0.08 percent. The standard error on the 3.2 percent of Blacks with vocational school experience is 0.2 percent. Therefore the standard error of the estimated difference of 1.4 percent is about

$$0.2 \text{ percent} \doteq \sqrt{(0.08)^2 + (0.2)^2}$$

This means that the 68 percent confidence interval for the difference is from 1.2 to 1.6 percent. A conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 68 percent of all possible samples. The corresponding 95-percent confidence interval is 1.0 to 1.8 percent. Thus, we can conclude with 95-percent confidence that the percentage of Whites 14 years and over with recent vocational school experience in October 1976 is greater than the corresponding percentage of Blacks.

Table B-3. "a" and "b" Parameters and Factors for Estimated Numbers and Percentages

Type of characteristic	Parameters		Factors
	a	b	F
Vocational School Training, Field of Training and Occupational Training:			
Total or White	-0.000016	2064	1.00
Black and other races	-0.000186	2792	1.16
Spanish origin	-0.000025	3851	1.37
Employment:			
Both Sexes			
Total or White	-0.000016	2078	1.00
Black and other races	-0.000133	2078	1.00
Spanish origin	-0.000026	4394	1.46
Male			
Total or White	-0.000025	1798	0.93
Black and other races	-0.000221	1798	0.93
Female			
Total or White	-0.000019	1541	0.86
Black and other races	-0.000152	1541	0.86
Income:			
Family			
Total or White	-0.000008	1063	0.72
Black and other races	-0.000064	922	0.67
Spanish origin	-0.000033	2397	1.08

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